



PATENT
Docket No. PD-980189

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:

Ellen K. Wesel

Date: August 6, 2001

Serial No. 09/159,817

Group Art Unit: 2683

Filed: September 23, 1998

Examiner: T. Gesesse

For: COMMUNICATIONS SYSTEM USING A SATELLITE-BASED NETWORK
WITH A PLURALITY OF SPOT BEAMS PROVIDING UBIQUITOUS
COVERAGE FROM TWO DIFFERENT SATELLITES

BRIEF ON APPEAL

Honorable Commissioner of Patents
Washington, D.C. 20231

Sir:

The following appeal brief is submitted pursuant to the appeal filed June 21, 2001 in the above-identified application.

1. Real Party in Interest

The real party in interest in this matter is Hughes Electronics Corporation in El Segundo, California (hereinafter "Hughes"). Hughes is the assignee of the present invention and application. Also, Hughes is a wholly owned subsidiary of General Motors Corporation.

2. Related Appeals and Interferences

There are no other known appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. Status Of The Claims

Claims 1-10 are currently pending and stand under final rejection, from which this appeal is taken.

4. Status Of Amendments

The notice of appeal was submitted in response to the office action mailed April 10, 2001. No amendments have been filed subsequent to the final rejection.

5. Summary Of The Invention

The present invention is directed to a satellite-based communications system (10) operating over a land mass includes a first satellite (102) generating a first plurality of spot beams directed at the land mass. The first set of spot beams (100) partially cover the land mass (106). A second satellite (104) generates a second plurality of spot beams (100). The first plurality of spot beams (100) and the second plurality of spot beams (100) in combination provide substantially ubiquitous coverage over the land mass (106).

A variation of the ubiquitous coverage theme is presented in claims 7 and 8 which are directed to a system in which the first plurality of spot beams have beam segment portions that correspond to areas or portions of the beam which are shown in Figure 13. The beam segment portions may be individually controlled so that based upon a predetermined condition these beam portions may be individually adjustable. As is known in the art, spot beams typically are controlled as one continuous beam and therefore portions of the beam corresponding to an area upon the earth are not individually adjustable.

6. Issues

The following three issues are presented in this appeal, all of which correspond directly to the Examiner's final grounds for rejection in the final Office Action dated April 10, 2001:

(1) Whether claims 1, 5-6 and 9-10 are patentable under 35 U.S.C. § 102(b) over *Rouffett et al.* (U.S. Patent No. 5,410,731, hereinafter, "*Rouffett*").

(2) Whether claims 2-4 are patentable under 35 U.S.C. § 103(a) over *Rouffett* in view of *Lynch et al.* (U.S. Patent No. 6,002,916, hereinafter "*Lynch*").

(3) Whether claims 7-8 are patentable under 35 U.S.C. § 103(a) over *Rouffett* in view of *Diekelman*. (U.S. Patent No. 5,612,701, hereinafter "*Diekelman*").

7. Grouping of Claims

The rejected claims have been grouped together into three groups by the Examiner in each of the rejections. The Appellants believe, however, that each of the rejected claims stands on its own recitation and is separately patentable for the reasons set forth in more detail below.

8. Argument

(a) Claims 1, 5-6 and 9-10

Claims 1, 5-6 and 9-10 stand finally rejected under 35 U.S.C. §102(b) in view of the *Rouffett* patent. It is submitted that the present invention is not anticipated by *Rouffett*.

Although *Rouffett* teaches two satellites, that is where the similarities between *Rouffett* and the present invention end. The *Rouffett* reference which teaches a satellite system that is used for direct television broadcasting, specifically teaches a system that directs a first beam for primary coverage and has a second beam that provides redundant coverage for a separate area that is covered by the primary beam of another satellite. This system, however, fails to teach or suggest a first plurality of spot beams providing partial coverage over a land mass and a second plurality of spot beams that together provide ubiquitous coverage over the land mass as recited in claim 1. Since the *Rouffett* reference is directed to use for direct television broadcasting, it is not surprising that such a system is not disclosed. In many satellite

systems, a single satellite attempts to provide coverage for the land mass. Typically, because of limitations of the satellites, ubiquitous coverage of a land mass cannot be provided. Applicant has recognized this and provided a second satellite with a plurality of second spot beams which in combination with the first spot beams provides ubiquitous coverage over the land mass.

In response to these arguments, the Examiner argues in paragraph 6 of the Final Office Action that "*Rouffett et al* disclose every element of applicant's invention, *Rouffett et al* teaches satellite telecommunications facility capable of covering a plurality of coverage areas (T1 and T2) using first satellite (S1) and second satellite (S2), the first satellite S1 has a plurality of beams (F1 and F2) and second satellite S2 has a plurality of beams (F'1 and F'2) their combined beams covering two separate land masses (T1 and T2) providing ubiquitous coverage over the land masses, see fig. 1." Admittedly, Fig. 1 of *Rouffett* teaches two satellites wherein each satellite generates two beams directed at two areas T1 and T2. The coverage from the two satellites overlaps each of the two areas. The areas are, however, separate and distinct areas. The description for Fig. 1 set forth in Col. 2, lines 61-63, states: "Fig. 1 shows a direct television broadcasting facility capable of beaming to two distinct earth coverage areas T1 and T2." The operative word in this passage is the word "distinct." No teaching or suggestion is present in the *Rouffett* reference for providing ubiquitous coverage as recited in claim 1. Only two separate non-touching beams are illustrated. Each time that the Examiner mentions "ubiquitous coverage" only a general reference to Fig. 1 is illustrated. No specific lines or column number is cited by the Examiner for the proposition of ubiquitous coverage. Appellant contends that no such passage exists.

Therefore, because each and every element of claim 1 is not taught in the *Rouffett* reference, Applicant respectfully requests the Board to reverse the rejection relative to claim 1.

With respect to claims 5-6, these claims are dependent upon their independent claims and therefore are also believed to be allowable for the same reasons set forth above. Claim 5 recites a plurality of reconfigurable spot beams, which in combination with the limitations of claim 1 above is neither taught nor suggested by the reference. Claim 6 recites two reconfigurable spot beams directed at the same area. This combination is also not taught or suggested in the *Rouffett* reference.

Claims 9 and 10 are dependent on claim 8. Claim 8 recites that the beam portions are independently adjustable in response to a condition. The *Rouffett* reference does not teach that the beam portions are independently adjustable in response to a rain condition as recited in claim 9 or heavy traffic as recited in claim 10. It should also be noted that claims 9 and 10 depend from claim 8 which in turn depends from claim 7 which in turn depends from claim 1. With respect to claim 7, the Examiner concedes that the *Rouffett* reference “fails to disclose at least one of said plurality of spot beams having a plurality of beam segment portions” (p. 4, par. 5 of Final Office Action). Since Claims 7 and 8 are not being rejected as being anticipated by the *Rouffett* reference and because claims 9 and 10 further limit claim 7, Applicant requests the Board to reverse this rejection.

Rouffett does not disclose a satellite system having a first satellite and a second satellite in which a first plurality of spot beams from the first satellite partially cover a land mass wherein the second plurality of spot beams in combination with the first plurality of spot beams provides substantially ubiquitous coverage over the land mass. Further, the additional

elements of independent claims 5, 6, 9 and 10 in combination with the limitations set forth in claim 1 are also not shown. Therefore, applicant respectfully requests the Board to reverse the rejections of the Examiner.

(b) Claims 2-4

Claims 2-4 stand rejected under 35 U.S.C. § 103(a) as being patentable over *Rouffett* et al in view of *Lynch*. More specifically, the *Rouffett* reference does not provide specific teaching of all of the types of satellites such as MEO, GEO, or IGSO satellites as recited in claim 2 or teachings that the spot beams are V-band or K-band as recited in claims 2 and 4. The Examiner has cited the *Lynch* reference to cure the shortcomings in the *Rouffett* reference. However, the *Lynch* reference does not provide the missing elements of claim 1. For example, the *Lynch* reference does not provide a first plurality of spot beams and a second plurality of spot beams that in combination provide substantially ubiquitous coverage over the land mass. Therefore, even if the *Lynch* reference is combined with the *Rouffett* reference, the present invention cannot be formed. Moreover, such a combination is not taught or suggested by either reference. Therefore, Applicant respectfully requests the Board to reconsider this rejection as well.

c) Claims 7-8

Claims 7-8 stand rejected under 35 U.S.C. § 103(a) over *Rouffett* in view of *Diekelman*. The *Diekelman* reference is cited for the proposition of providing a plurality of reconfigurable spot beams. The Examiner points to Figs. 6 and 7 for the reconfigurability. Applicant has reviewed the reference and believes that the *Diekelman* reference does not teach reconfigurable spot beams. In fact, it appears from the description of Fig. 6 starting on Col. 5, line 11, that the *Diekelman* reference is a system similar to those known in the art. That is, the beam may be moved from a first position to a second position in response to the



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movement of a user. The *Diekelman* reference does not have beam segment portions that may be individually reconfigurable as recited in claims 7 and 8. Each of the beams in the *Diekelman* reference is a homogeneous beam and does not have reconfigurable beam segment portions.

Therefore, even if the references are combined, the combined teachings neither teach nor suggest the recitations of claim 1 in combination with either of the limitations from claims 7 and 8. Therefore, applicant respectfully requests the Board to reverse the rejection of the Examiner.

Claim 7 and claim 8 are also believed to be patentable because neither reference illustrates beam segment portions as recited in claim 7, and beam segment portions independently adjustable in response to a condition as recited in claim 8.

9. Appendix

A copy of each of the claims involved in this appeal, namely claims 1-10, is attached hereto as Appendix A.

10. Conclusion

For the reasons advanced above, Appellants respectfully contend that each claim is patentable. Therefore, reversal of all rejections is requested.

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
APPENDIX A

1. A satellite system operating over a land mass comprising:

a first satellite generating a first plurality of spot beams directed at said land mass, said first set of spot beams partially covering said land mass;

a second satellite generating a second plurality of spot beams;

said first plurality of spot beams and said second plurality of spot beams in combination provide substantially ubiquitous coverage over the land mass.
2. A satellite system as recited in claim 1 wherein said first satellite and said second satellite are selected from the group consisting of a MEO, a GEO, and an IGSO.
3. A satellite system as recited in claim 1 wherein said spot beams are V band.
4. A satellite system as recited in claim 1 wherein said spot beams are K band.
5. A satellite system as recited in claim 1 wherein said first plurality spot beams comprise a plurality of reconfigurable spot beams.
6. A satellite system as recited in claim 1 wherein said plurality of reconfigurable spot beams comprises a first spot beam directed at a first area and a second spot beam directed substantially to said first area.
7. A satellite system as recited in claim 1 wherein at least one of said first plurality of spot beams having a plurality of beam segment portions.
8. A satellite system as recited in claim 7 wherein said at least one of said plurality of beam segment portions being independently adjustable in response to a condition.
9. A satellite system as recited in claim 8 wherein said condition is rain.
10. A satellite system as recited in claim 8 wherein said condition is heavy traffic routed through said satellite.